

IN THE CLAIMS

1. (Currently Amended) A method of manufacturing a semiconductor device comprising ~~the steps of:~~

~~forming a semiconductor film on a substrate and then growing spherical or hemispherical grains on the surface of the a semiconductor film;~~

~~diffusing an impurity product to the grains grown on the surface of the semiconductor film;~~

~~removing the impurity product, which is generated in the step of diffusing the impurity, from the surface of the semiconductor film using a non etching first cleaner selected from the group consisting of: 1) hot water, 2) a mixed solution of water, hydrochloric acid and hydrogen peroxide, and 3) a mixed solution of sulfuric acid and hydrogen peroxide; and~~

~~removing native oxide on the semiconductor film after the step of removing the impurity product using a second cleaner.~~

2. (Currently Amended) A method of manufacturing a semiconductor device as claimed in claim 1A semiconductor device as claimed in claim 1, wherein the semiconductor film is formed of a silicon material and phosphorus or arsenic is used as the impurity product.

3. (Original) A method of manufacturing a semiconductor device as claimed in claim 1, wherein deionized water is used for the hot water.

4. (Currently Amended) A method of manufacturing a semiconductor device as claimed in claim 1, wherein the temperature of the hot water lies within the range of 30°C to 80°C.

5. (Currently Amended) A method of manufacturing a semiconductor device as claimed in claim 1, wherein the semiconductor film which contains the impurity product and the grains ~~are~~ formed thereon ~~is~~ are used as one of electrodes of a capacitor.

8. (Currently Amended) A method of manufacturing a semiconductor device as claimed in claim 7 1, wherein the native oxide is removed using a mixed solution of hydrofluoric acid and deionized water.

Claims 9-10 (Canceled)

11. (Previously Presented) A method of manufacturing a semiconductor device as claimed in claim 5, wherein the capacitor is a cylindrical capacitor.

12. (New) A method of manufacturing a semiconductor device comprising:
removing an impurity product from spherical or hemispherical grains formed on a semiconductor film using a first cleaner selected from the group consisting of: 1) hot water, 2) a mixed solution of water, hydrochloric acid and hydrogen peroxide, and 3) a mixed solution of sulfuric acid and hydrogen peroxide; and
removing native oxide from the semiconductor film using a second cleaner.

13. (New) A method of manufacturing a semiconductor device as claimed in claim 12, wherein the semiconductor film is formed of a silicon material and phosphorus or arsenic is used as the impurity product.

14. (New) A method of manufacturing a semiconductor device as claimed in claim 12, wherein deionized water is used for the hot water.

15. (New) A method of manufacturing a semiconductor device as claimed in claim 12, wherein the temperature of the hot water lies within the range of 30°C to 80°C.

16. (New) A method of manufacturing a semiconductor device as claimed in claim 12, wherein the semiconductor film which contains the impurity product and the grains formed thereon are used as one of electrodes of a capacitor.

17. (New) A method of manufacturing a semiconductor device as claimed in claim 16, wherein the capacitor is a cylindrical capacitor.

18. (New) A method of manufacturing a semiconductor device as claimed in claim 7, wherein the native oxide is removed using a mixed solution of hydrofluoric acid and deionized water.

19. (New) A method of manufacturing a semiconductor device as claimed in claim 12, wherein the removing of the native oxide is after the removing of the impurity product.